

Please add the following new claims:

--13. A microfluidic device for the detection of a target analyte in a fluid sample comprising:

- a) a cartridge comprising a solid support member;
- b) a sample inlet port to said microfluidic device;
- c) a first nucleic acid amplification module including:
 - i) a nucleic acid amplification chamber formed in said cartridge to receive said sample and amplify a target sequence;
 - ii) an amplification inlet port; and
 - iii) an amplification outlet port;
- d) a first microchannel formed in said support member and fluidically coupled to and extending between said sample inlet port and said amplification inlet port;
- e) a detection module comprising a detection chamber formed in said cartridge comprising an array of capture probes; and
- g) a second microchannel formed in said cartridge and extending between said amplification outlet port and said detection module for the flow of said target analyte.

14. A microfluidic device according to claim 13 wherein said amplification chamber comprises a serpentine microchannel, and said solid support comprises a plurality of embedded heaters positioned transverse to said serpentine microchannel.

15. A microfluidic device according to claim 13 further comprising a cap.

16. A microfluidic device according to claim 13 further comprising a thermal heater.
17. A microfluidic device according to claim 16 wherein said amplification module comprises said thermal heater.
18. A microfluidic device according to claim 13 further comprising a plurality of thermal heaters.
19. A microfluidic device according to claim 13 wherein said detection module comprises a mixer comprising an air bubble and a thermal heater in thermal contact with said air bubble.
20. A microfluidic device according to claim 13 wherein said detection module comprises a mixer comprising at least one air bubble and a piezo-electric transducer (PZT)
21. A microfluidic device according to claims 13 wherein said detection module is configured to minimize the introduction of air bubbles upon introduction of a sample.
22. A microfluidic device according to claim 13 wherein said detection module comprises an array of electrodes comprising said capture probes.
23. A microfluidic device according to claim 22 wherein said electrodes each comprise a self-assembled monolayer (SAM).

24. A microfluidic device according to claim 13 and a first valve positioned in said inlet port of said nucleic acid amplification chamber and a second valve positioned in said outlet port of nucleic acid amplification chamber.
25. A microfluidic device according to claim 24, wherein at least one of said valves is a check valve.
26. A microfluidic device according to claim 24 wherein at least one of said valves is a burst valve.
27. A microfluidic device according to claim 26 wherein said burst valve is a polymer.
28. A microfluidic device according to claim 13 further comprising a pump.
29. A microfluidic device according to claim 28 wherein said pump is positioned in said nucleic acid amplification chamber.
30. A microfluidic device according to claim 28 wherein said pump is an air pump.
31. A microfluidic device according to claim 28 wherein said pump is a PZT pump.
32. A device for multiple biochip analysis comprising at least two stations configured to receive a biochip cartridge.--

REMARKS

Claims 1-12 have been cancelled. Claims 13-32 are newly added.

Support for new claim 13 is found in original claim 1, in Figures 1 and 2, and in the specification at page 2, lines 16-23. Support for new claim 14 is found in Figure 10B. Support for new claim 15 is found in the specification at page 27, line 29 through page 28, line 31. Support for new claims 16, 17 and 18 is found in the specification at page 24, line 36 through page 26, line 1. Support for new claims 19 and 20 is found in Figure 70, in the specification at page 24, lines 14-34, and in Example 3. Support for new claim 21 is found in the specification at page 17, lines 33-36. Support for new claim 22 is found in original claim 3, and in the specification at page 29, line 36 through page 30, line 10. Support for new claim 23 is found in original claim 3. Support for new claims 24 -27 is found in original claims 7-10 and in the specification at page 19, line 21 through page 22, line 11. Support for new claims 28-31 is found in original claim 11 and in the specification at page 22, line 13 through page 24, line 12. Support for new claim 32 is found in Figure 7 and in the specification at page 11, lines 25-34.

Attached hereto is a marked-up version of the changes made to the claims by the "Restriction and Amendment". The attached page is captioned **"Version with markings to show changes made."**

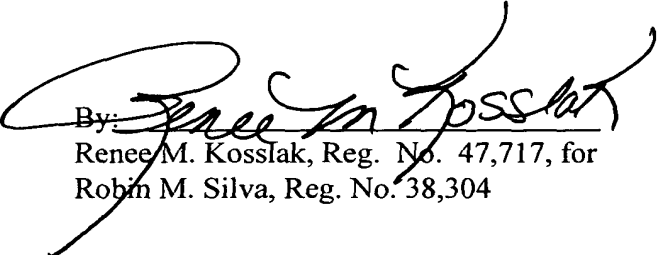
The Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 06-1300 (Our Order No. A-68718-4/RFT/RMS/RMK).

Please direct any calls in connection with this application to the undersigned at
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Dated: 7/8/02

Respectfully submitted,

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